

CLAIMS

1. An electronic label reading system including:  
at least one information bearing electronic coded label;  
5 an interrogator including a transmitter coil and a receiver coil;  
a magnetic field coupling link containing said transmitter coil and said receiver coil for obtaining information from said label;  
wherein the coupling link is arranged such that it operates in the near field thereof and wherein substantially none or at most a minority of the magnetic flux which excites said receiver coil also links said transmitter coil.
- 10 2. An electronic label reading system as claimed in claim 1 wherein said transmitter or receiver coil contains a magnetic core.
3. An electronic label reading system as in claim 1 or 2 wherein said label includes a label antenna operated in proximity to a metal object and the metal object provides substantial reduction of the amount of magnetic field that would reach the receiver coil from the transmitter coil in relation to the magnetic field which would reach said receiver coil if the metal object were not present.
- 15 4. An electronic label reading system as claimed in claim 1 wherein said coupling link is used for signalling from the interrogator to the label.
5. An electronic label reading system as claimed in claim 1 wherein said coupling link is used for signalling from the label to the interrogator.
6. An electronic label reading system as claimed in claim 1 wherein the interrogator provides power to the label to generate a reply from the label.
- 25 7. An electronic label reading system as claimed in claim 1 wherein the label generates replies intermittently.
8. An electronic label reading system as claimed in claim 7 wherein power for the label comes from power supplied by the transmitter during the period of the label giving a reply.
- 30 9. An electronic label reading system as claimed in claim 4 wherein the label may be read while a sheet of metal is interposed between the interrogator and the label.

10. An electronic label reading system as claimed in claim 9 wherein said sheet of metal is of substantial extent.

11. An electronic label reading system as claimed in claim 9 including a label antenna coil wherein the transmitter and receiver coils have parallel  
5 axes.

12. An electronic label reading system as claimed in claim 3 including a label antenna coil wherein the label coil is excited by a magnetic field created by surface currents on metal of an object carrying said label.

13. An electronic label reading system as claimed in claim 3 wherein  
10 currents are induced on one side of the metal object by using a magnetic field creating antenna, wherein a pathway on said metal object allows those currents to pass to the other side of said metal object, and wherein said label containing a magnetic field responding antenna is placed close to the currents on said other side of said metal object so that said magnetic field responding  
15 antenna interacts with the magnetic field which accompanies said currents on said other side of said metal object.

14. An electronic label reading system as claimed in claim 13 wherein said pathway is provided by holes in said metal object.

15. An electronic label reading system as claimed in claim 13  
20 wherein said currents induced on one side of said metal object travel toward an edge of said metal object.

16. An electronic label reading system as claimed in claim 13 wherein currents change direction when they reach said other side of said metal object.

25 17. An electronic label reading system as claimed in claim 14 wherein edges of the holes in said metal are perpendicular to the direction of said induced current.

18. An electronic label reading system as claimed in claim 14 wherein said holes are extended in the direction of a magnetic field created by  
30 said magnetic field creating antenna.

19. An electronic label reading system as claimed in claim 14 wherein said holes are a natural part of said object.

31. An electronic label reading system as claimed in claim 30 wherein the rollers have a non-conducting surface or non-conducting bearings.

32. An electronic coded label for use in proximity to a metal object wherein said label is carried in a slot in said metal object.

33. An electronic label as claimed in claim 32 wherein the length of said slot, in the direction perpendicular to the path of currents in the region of the slot, is significantly greater than the length of the label coil or its ferrite core in that direction.

34. An electronic label as claimed in claim 32 wherein the whole of said label is inside the main outline of said metal object.

35. An electronic label as claimed in claim 32 including a label antenna wherein the label coil is resonant in its operating frequency band.

36. An electronic label as claimed in claim 35 wherein the resonant frequency is adjusted for proximity of the label to the metal of the object carrying the label.

37. An electronic label as claimed in claim 32 wherein the object being labelled is an airline cargo pallet, and said label is locked in position by employing slots already made in said pallet for the purpose of cargo lock down.

38. An electronic label as claimed in claim 37 wherein barbs on said label lock it in place in a re-entrant slot in the pallet.

39. An electronic label as claimed in claim 32 including a label antenna coil wherein the label coil is excited by a magnetic field created by surface currents on the metal object.

40. An electronic label as claimed in claim 39 wherein currents are induced on one side of the metal object by using a magnetic field creating antenna, wherein a pathway on said metal object allows those currents to pass to the other side of said metal object, and wherein said label containing a magnetic field responding antenna is placed close to the currents on said other side of said metal object so that said magnetic field responding antenna interacts with the magnetic field which accompanies said currents on said other side of said metal object.

41. An electronic label as claimed in claim 40 wherein said pathway is provided by holes in said metal object.

FOUO 5444260

43. An electronic label as claimed in claim 42 wherein edges of the holes in said metal are perpendicular to the direction of said induced current direction.

10 providing an interrogator containing a transmitter coil and a receiver coil;  
providing a magnetic field coupling link containing said transmitter coil  
and said receiver coil for obtaining information from said label; and

15            45.    An electronic label reading system substantially as herein  
described with reference to the accompanying drawings.

~~adda~~